IN THE CLAIMS

1-43. (Cancelled)

44, (New/Withdrawn) A sucrose synthase comprising SEQ ID NO: 12.

45. (New/Withdrawn) The sucrose synthase as claimed in claim 44 that consists essentially of SEQ ID NO: 12.

46. (New/Withdrawn) The sucrose synthase as claimed in claim 45 that consists of SEQ ID NO: 12.

47. (New/Withdrawn) A method of preparing ADPG comprising the steps of incubating the sucrose synthase of claim 44 with ADP in suitable conditions for causing a reaction that produces ADPG followed by isolation and purification of the ADPG produced.

48. (New/Withdrawn) The method of preparing ADPG according to claim 47, comprising the steps of:

a) Providing 100 ml of the following solution for the incubating step and incubating for 12 h at 37°C:

Sucrose	1 M
HEPES, pH 7.0	50 mM
EDTA	1 mM
Polyethylene glycol	20%
$MgCl_2$	1 mM
KCl	15 mM
ADP	100 mM

b) Stopping the reaction by heating,

c) Centrifuging at 10000 g for 10 min with formation of a supernatant, and

d) Chromatographing the supernatant by HPLC, and then eluting and purifying the ADPG.

49. (New/Withdrawn) An assay kit for the spectrophotometric, fluorimetric or amperometric determination of sucrose comprising the sucrose synthase of claim 44.

50. (New/Withdrawn) The assay kit as claimed in claim 49, comprising an incubation medium with the following components:

a) 2 units of sucrose synthase.
b) 2 mM of ADP
c) 2 units of ADPG pyrophosphatase of plant, animal or microbial origin
d) 2 units of PGM
e) 2 units of G6PDH
f) 0.5 mM of NAD(P)
g) 100 ml of reaction buffer: 50 mM HEPES, pH 7.0 / 1 mM EDTA / 20% polyethylene glycol / 1 mM $MgCl_2$ / 15 mM KCl
h) Previously filtered test sample.

51. (New/Withdrawn) The assay kit as claimed in claim 49, comprising an incubation medium with the following components:

a) 2 units of sucrose synthase.
b) 2 mM of UDP
c) 2 units of UDPG pyrophosphatase of plant, animal or microbial origin
d) 2 units of PGM
e) 2 units of G6PDH
f) 0.5 mM of NAD(P)
g) 100 ml of reaction buffer: 50 mM HEPES, pH 7.0 / 1 mM EDTA / 20% polyethylene glycol / 1 mM $MgCl_2$ / 5 mM KCl
h) Previously filtered test sample.

52. (New/Withdrawn) The assay kit as claimed in claim 49, comprising an incubation medium with the following components:

a) 2 units of sucrose synthase.
b) 2 mM of UDP
c) 2 units of UDPG dehydrogenase
d) 0.5 mM of NAD
e) 100 ml of reaction buffer: 50 mM HEPES, pH 7.0 / 1 mM EDTA / 20% polyethylene glycol / 1 mM $MgCl_2$ / 15 mM KCl
f) Previously filtered test sample.

53. (New) A method of producing a transgenic plant that overexpresses sucrose synthase comprising the steps of inserting a genetic construct that contains and expresses the DNA fragment of SEQ ID NO: 11 in a suitable vector and transferring the genetic construction to the genome of a plant.

54. (New) The method according to claim 53, wherein the vector comprises pSS5.

55. (New) A transgenic plant comprising a genetic construct that overexpresses a sucrose synthase comprising SEQ ID NO: 12 such that the plant has a higher content of sucrose, G6P, ADPG and starch than a corresponding wild-type plant without the genetic construct.

56. (New) The transgenic plant according to claim 55, wherein the transgenic plant has a level of sucrose synthase enzyme activity that is 2-10 times greater than a level of sucrose synthase enzyme activity in a corresponding wild-type plant without the genetic construct.

57. (New) The transgenic plant according to claim 55, which is selected from the group consisting of a tobacco plant, a potato plant a tomato plant and a rice plant.

58. (New) The transgenic plant according to claim 56, which is selected from the group consisting of a tobacco plant, a potato plant a tomato plant and a rice plant.

59. (New) The transgenic plant according to claim 57, wherein the plant has leaves with a content of sucrose, G6P, ADPG and starch and with an amylose/amylopectin ratio that is higher than those in leaves of a corresponding wild-type plant.

60. (New) The transgenic plant according to claim 58, wherein the plant has leaves with a content of sucrose, G6P, ADPG and starch and with an amylose/amylopectin ratio that is higher than those in leaves of a corresponding wild-type plant.

61. (New) The transgenic plant according to claim 57, wherein the plant has at least one of a root, tuber or seed with a content of sucrose, G6P, ADPG and starch and with an amylose/amylopectin ratio that is higher than those in a root, tuber or seed of a corresponding wild-type plant.

62. (New) The transgenic plant according to claim 57, wherein the plant has at least one of a root, tuber or seed with a content of sucrose, G6P, ADPG and starch and with an amylose/amylopectin ratio that is higher than those in a root, tuber or seed of a corresponding wild-type plant.